APPENDIX 5

STRATEGIC LIST MATERIALS

A. GENERAL. Strategic List Items are dual-use (commercial and military) items under the export control jurisdiction of the Bureau of Export Administration (BXA), U.S. Department of Commerce, which have been assigned a code letter "A" or "B" following the Export Control Classification Number (ECCN) on the Commerce Control List (CCL), Section 799.1, of the Export Administration Regulations (EAR), 15 CFR. These commodities are controlled for reasons of national security, foreign policy controls, nuclear proliferation, missile technology, chemical or biological warfare, and short supply (resource assessment) DoD item/technical managers/equipment specialists will assign a demilitarization code of "Q" to these items if they fall outside of the criteria of a Munitions List Item. Items which fall outside of the criteria for both Munitions and Strategic List Items will be assigned a demilitarization code of "A."

<u>NOTE:</u> The Munitions List always takes precedence over the Strategic List. This Appendix and the related EAR will be used only when an item does not meet the criteria for a Munitions List Item.

- B. COMMODITY CONTROL LIST. The following is the United States *Commerce* Control List, excerpted from the U.S. Export Administration Regulations, 15 CFR, Part 799.1. This list is included for general guidance in identifying commodities which are Strategic List Items (SLI). Final determination must be based on a review of the specific commodity interpretation in 15 CFR, Part 799.1, and a commodity listed in this section must not be construed as all inclusive (e.g., Absorbers, electromagnetic wave, ECCN 1C01A, include only those which have frequencies exceeding 2 X 10⁸ Hz and less than 3 X 10¹² Hz, with three exceptions).
- C. THE EXPORT ADMINISTRATION REGULATIONS. The U.S. Export Administration Regulations are updated several times a year with publication of Export Administration Bulletins and a complete printing is produced annually. To obtain a copy of the U.S. Export Administration Regulations and all subsequent Export Administration Bulletins, contact the Department of Commerce, (202) 482-4811, Ext. 0. Annual subscription rate is \$94, there is no charge to DoD activities.

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COMMODITY DESCRIPTION	ECCN
A-D and D-A converters	3A01A
Absorbers, electromagnetic wave	1C01A
Absorbers, hair type	1C01A
Absorbers, planar	1C01A
Accelerators, electron	2A54B
Accelerators, particle	2A54B
Accelerometers	7A01A
Acoustic underwater communications	5A02A
Acoustic underwater detection devices	6A 18A
Acoustic wave devices	3A01A
Acoustics	6A01A
Active magnetic bearing systems	2A05A
Adaptive radios	5A02A
Aero-engines & parts	9A01A
Air independent power systems	8A02A
Airborne laser radar systems for missile systems	7A26B
Airborne radar	7A26B
Aircraft gaskets	1A01A
Aircraft/helicopters	Cat. 9A
Airframe structures equipment	1B03A
Airlocks, for use with nuclear plants	2A50B
Alloys/metal/powder or materials	1C02A
Alloys/metal/powders, systems for producing	1B02A
Altimeters, airborne	7A06A
Aluminum alloys	1C02A
Ammunition	0A 18A
Amorphous alloy strips	1C03A
Amplifier equipment	5A02A
Amplifiers, solid state	3A01A
Analog instrumentation magnetic tape recorders	3A02A
Analog transmission equipment	5A02A
Analog-to-digital and digital-to-analog converters	3A01A
Analyzers, network	3A02A
Analyzers, protocol	5B02A
Antennas, phased array	5A06A
Anti-friction bearings	Cat. 2A
Arc furnaces	1B50B
Armor plate machines	2B18A
Array processors, digital	3A01A
Atomic Frequency-standards	3A02A
Attitude Heading Reference System (AHRS)	7D02A
Automatic pilots	Cat. 7A
Avionics	Cat. 7
Bacteria/fungi/protozoa	1C61B
Ball bearings or solid roller bearings	Cat. 2A
Batch mixers	1B28B
Batteries	3A01A
Bayonets Bayonets	0A18A
Bearings systems, active magnetic	2A05A
Bearings, ball or solid roller A5-2	Cat. 2A
Mil-Z	

COMMODITY DESCRIPTION ECCN 2A04A Bearings, gas-lubricated foil Bearings, journal sliding 2A06A 2A03A Bearings, solid tapered Beryllium metal/compounds/alloys 1C19A Bismuth 1C51B Bit-error rate testers, telecommunications 5B02A Bladders made from fluorelasomers 1A01A 1A01A Bladders, fuel, for aircraft Blowers, corrosion resistant to hydrogen sulfide 2A55B4A03A Boards, mother, for computers Boilers, marine 8A18A Bonding, diffusion, equipment 1B03A 1C57B Boron and boron compounds Brush seals, equipment for the test of 9B03A C.A.D. for semi-conductor/microcircuit 3B01A C.A.D. software 3D03ACable manufacturing equipment 5B01A Cable, fluoride fiber/other 6A04A Cable, optical fiber/other communication 5A05A Calcium 1C52B 6A03ACameras 3A01A Capacitors 1C10A Carbon fibrous and filamentary materials Casks for transporting radioactive materials 2A50B 1C19A Catalysts 5E02A Cellular phones/radio technology Cellular phones/radio, switching 5A03A Cellular/mobile phones/radios containing cryptography 5A11A 2B53BCentrifugal balancing machines 2B18A Centrifugal casting machines Ceramic (other) or graphite materials 1C27B Ceramic base materials 1C07A 1B18A Chambers, environmental Channel estimators 5B02AChemical weapons, equipment used in production of Cat. 1B Chemicals on the International Munitions List 1C18A 1C56B Chlorine trifluoride Chlor of luor ocarbons1C06A Cipher equipment 5A11A Co-processors, graphics 4A03A Collector, for nuclear use 2A52B Common channel signalling 5A03A Communications Cat. 5 Communications equipment Cat. 5 Communications intercepting devices & parts 5A02A Communications processors Cat. 5 Communications transmission equipment 5A02A Cat. 7 Compasses/gyroscopes Components made from fluorinated compounds 1A01A Compounds, fluorinated 1A01A A5-3

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CONTRODIENT DECCRIPMION	DOOM
COMMODITY DESCRIPTION	ECCN
Commenciate and decators Harmanan decation!	10054
Composite conductors, "superconductive"	1C05A
Composite structures (other)	1A22B
Composite structures or laminates	1A02A
Composite theoretical performance (CTP)	Cat. 4
Compressor/blowers for hydrogen sulfide	2A55B
Computer-aided-design (CAD) software for semiconductor devices or integrated circuits	3D03A
Computers	3D03A Cat. 4
<u>-</u>	4A02A
Computers, airborne Computers, non-ruggedized	4A02A 4A03A
Computers, non-raggeaizea Computers, software	Cat. 4D
Computers, technology	Cat. 4E
Computers, technology Computers, test/manufacture/development equipment	Cat. 4E
Computers, resumantifacture development equipment Computers, ruggedized	4A01A
Construction equipment (to military specs)	0A18A
controlled	VAIOA
Controlled environment furnaces	1B50B
Copolymers, thermoplastic liquid crystal	1C08A
Copolymers, vinylidene fluoride	1C09A
Crime-science laboratories, mobile, nonmilitary	9A80B
Crucibles	1A44B
Cryptanalytic equipment	5A11A
Cryptographic & ancillary equipment	5A 11A
Cylindrical tubing	1A46B
D-A, A-D converters	3A01A
Damping or flotation fluids	1C06A
Data communication equipment	Cat. 5
Deep submergence vehicles	Cat. 8A
Densification equipment, pyrolytic	1B30B
Depleted uranium	1A48B
Detection/tracking equip. infrared/ultraviolet	6A02A
Detonators	3A49B
Diesel/marine engines	8A 18A
Digital computer peripherals	Cat. 4
Digital transmission equipment	5A02A
Dimensional inspection systems	2B06A
Direct numerical control systems	Cat. 2B
Disk drives, computer	Cat. 4
Doppler navigation radar equipment	7A26B
Electro-optic materials	6C04A
Electrolytic cells for fluorine production	1B19A
Electron accelerators	2A54B
Electron video tubes/specialized components	Cat. 6A
Electronic devices and components	3A01A
Electronic equipment	3A02A
Electronic test equipment	3A02A
Electronic vacuum tubes	3A01A
Electrostatic collectors	2A52B
Emulators for microcircuits	3A02A
Encoders, position	3A01A
Δ.D.=/I	

COMMODITY DESCRIPTION ECCN Encryption/decryption equipment 5A11A Engines, marine gas turbine 9A02A Equipment for production of fibers/prepegs/preforms 1B01A Ethyl and Methyl centralites 1C18A Exchanges, telephones 5A03A Explosives (military)/propellants/fuels 1C18A Facsimile equipment 5A02A Fiber optic 6A06AFiber optic cable 5A05A Fiber-optic connectors, couplers, & components 5A05A Fiber-optic hull penetrators or connectors 8A02A Fiber-optic manufacturing equipment 5B01A Fibers, reinforcement, equipment 1B01A Fibrous/filamentary material, laminated 2C10A Fibrous/filamentary materials of carbon 1A02A Filament winding machines 1B01A Firing sets 3A46B Fittings, nuclear use 1A51B Flotation fluids 1C06A Fluids and lubricating materials 1C06A Fluorinated compounds 1A01A Fluorocarbon compounds (unprocessed) 1C09A Foil bearings, gas-lubricated 3A04A Forms and forgings, cylindrical 1A46B Frequency agile radio systems 5A02A Frequency agile radio systems 5A11A Frequency standards 3A02AFrequency synthesizers 3A02AFuel bladders 1A01A Furnaces, vacuum or controlled environment 1B50B Gas, turbine blade/vane-making equipment 9B01A Gas-lubricated foil bearings 2A04A Gaskets for aircraft 1A01A Gateways and bridges, telecommunications 5A02A Gear making/finishing machines 2B03A Generators, nuclear related 2A50B Generators, signal 3A02A Graphite materials, missile systems 1C27B Gravimeters 6B07A Gravity meters (gravimeters) & gradimeters 6A07A Gun honing machines 2B18A Gun systems, high-velocity 3A48B Gyro tuning test stations 7B03A Gyrostabilizers Cat. 7 Hafnium metal/compounds/alloys 1C19A Hair type absorbers 1C01A Heat exchangers, nuclear related 2A50B Heat shields 1C22B Helicopters Cat. 9A Helium, enriched in isotope 3 2C55B

COMMODITY DESCRIPTION ECCN HEMT (High electron mobility transistors) 3C01A High energy devices 3A01A High velocity gun systems 3A48B Hot isostatic presses 2B04A Hydraulic fluids 1C06A Hydrides 3C04A Hydrofoils 8A02A Image enhancing 4A03A Imaging equipment, direct view 6A02AInduction coil magnetometers 6A06A Induction hardening machines (for tank turret comp.) 2B18A Inertial measurement unit (IMU) 7B22B Inertial navigation systems 7A03A Information Security Cat. 5 Infrared communications systems 5A02A Inorganic fibrous or filamentary materials 2C10B Inspection equipment, non-destructive 2B01A Inspection equipment, nuclear 2A50B Integrated circuit manufacturing equip. 3B01A Integrated circuits 3A01A Integrated Services Digital Network 5A03A Interlacing machines 1B01A Intrinsic magnetic gradiometers 6A06A Inverters/converters/frequency changers 3A50B Isostatic presses 2B24B Isostatic presses, hot 2B04A Isotopically enriched helium 1C55B Journal sliding bearings 2A06A Kasers 6A05AKetones 1C08A Lasers, telecommunications systems 5A02A Light systems for underwater use 8A02A Light systems for underwater use 8A93A Line terminating equipment 5A02A Lithium metal/compounds/alloys 1C19A Lithography equipment, semiconductor 3B01A Local area network Cat. 5 LSI masks/substrates/mask making and related equip. 3C01A Lubricants Cat. 1 Lubricating materials 1C06A Machinery for aircraft manufacture 1B03A Machinery for military equip. mfg./testing 2B18A Machines for manufacture of jet/gas turbine engines Cat. 9B Machines for turning optical-quality surfaces 2B02A Magnesium 1C53B Magnesium alloys 1C02A Magnetic collectors 2A52BMagnetic metals 1C03A Magnetic/pressure/acoustical underwater detection dev. 6A18A Magnetometers 6A06A

ECCN **COMMODITY DESCRIPTION** 2B51B Mandrels and bellows forming dies/rotor fab. equip. 2A50B Manipulators, remote, for nuclear use 8A01A Manned submersible vehicles Manufacturing/inspection machine that can be numerically Cat. 2B 1A27B Maraging steel 1A47B Maraging steel Cat. 8 Marine technology 3B01A Masks or reticles 3A51B Mass spectrometers Materials (see also specific categories) Cat. 1 Cat. 2 Materials Processing Cat. 2B Materials processing table: Deposition techniques Measuring equipment, electronic 3A02A Measuring equipment, telecommunications 5B01A Cat. 4 Medical equipment, computerized 1A45B Mesh, phospher bronze 1C02A Metal alloys/powders and materials 1B02A Metal alloys/powders and materiel, equipment for Metal-organic compounds; Al, Gallium, Indium 3C03A Cat. 1 Metals 5A06A Microwave antennas, phase array 3A01A Microwave equipment Microwave equipment (receivers/transceivers) 3A02A8A02A Microwave equipment telecommunications 3A01A Microwave or millimeter wave devices Military explosives, equipment 1B18A 0A18A Military helmets 2A19A Military nuclear reactor-related power gen. equip 9A 18A Military training equipment Mixers, batch, for mixing solid propellants 1B28B 5A02A Modems 1B03A Molds for bonding and forming Molybdenum & molybdenum alloys 1C22B 4A03A Mother boards, computers 8A18A Motors, submarine-propulsion electric Mtop (millions of theoretical operations per second) Cat. 4A Multidirectional/multidimensional weaving machines 1B01A Multiplex equipment 5A02A 6A02A Multispectral imaging sensors Muzzle-loading (black powder) firearms 0A18A 8A 18A Naval equipment/diesel engines Navigation/director finding equipment Cat. 7 3A02A Network analyzers 5A04A Network control Neutron generator systems 2A 19A Neutron generator systems 2A 19A 1C02A Nickel alloys 1C19A Nickel powder/porous metal Niobium alloys 1C02A 1C08A Non-fluorinated polymeric substances

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COMMODITY DESCRIPTION	ECCN
Nozzles substrates and throats	1C22B
Nozzles, spec. designed for producing materials from precursor	1B30B
gases	
Nuclear reactor/nuclear power plant-related comm.	5A01A
Nuclear reactor/nuclear power plant-related equip.	2A50B
Numerical control equipment	Cat. 2B
Ocean cable	5A05A
Optical amplifiers, telecommunications	5A02A
Optical detectors	6A02A
Optical fiber characterization equipment	5B01A
Optical fibers & cables	5A05A
Optical fibers/cables mfg. & test equipment	5B01A
Optical integrated circuits	3A01A
Optical sensors	6A02A
Optical/optical tube elements	6A02A
Optics	Cat. 6
Organic fibrous and filamentary materials	1C10A
PABX/PBX equipment	5A03A
Packet switching equipment	5A03A
Packings of phosphor bronze mesh	1A45B
Panoramic/digitally controlled radio receivers	5A02A
Parachutes, military	9A 18A Cat. 4
Peripherals, computers Phased array antennas	5A06A
Photo-voltaic cells	3A01A
Photographic equipment	6A03A
Photosensitive components	6A02A
Photosensitive equipment	6A22B
Piezoelectric polymers & copolymers	1A01A
Pipe/valves/heat exchangers, stainless steel/corrosion resistant	2A52B
Planar absorbers	1C01A
Plasma furnaces	1B50B
Polymeric substances/manufactures	Cat. 1
Power generating equipment	2A 19A
Power plant simulator, nuclear	2A50B
Precision tracking systems	6A29B
Precursor materials	1C07A
Preforms for fabrication optical trans. fibers	5C01A
Presses & specialized controls/accessories	2B04A
Pressure refueling equipment	9A18A
Pressurized aircraft breathing equipment	9A18A
Private automatic exchanges	5A03A
Profilometers	7B02A
Propellant control systems, liquid or slurry	9A23B
Propellants, constituent chemicals for	1C31B
Propellants, production of	1B18A
Propellants, production of Propellers, marine	1B28B
Propetters, marine Propulsion systems	8A02A
Propulsive substances	Cat. 9 1C31B
1 ropuisive substances A5.8	ICSIB

COMMODITY DESCRIPTION ECCN 5B02A Protocol analyzers Pulse generators 3A44B Pump jet propulsion systems 8A02A 2A53B Pumps for nuclear uses Pyrolytic deposition & densification equipment 1B30B Cat. 7 Radar & related equipment Radar (airborne) & related equipment 6A08A Radar (airborne) & related equipment 6A28B Radar cross section measurement equipment 6A30B Radar reflectivity 1C21B Radiation hardened cameras 2A50B Radiation shielding windows, high-density 2A50BRadio relay communications equipment 5A02A 3A22BRadiographic equipment (linear accelerators) 1C54B Radioisotopes Reactor, nuclear 2A50B Reactor, nuclear, simulator 2A50B Receiving equipment containing cryptography 5A11A Recording equipment 3A02AReduced observables 1C21B Reflectometers 7B22B Reflectometers, optical time domain 5B01A Regenerator equipment 5A02A Remote manipulators, nuclear use 2A50BRepeater and regeneration equipment 5A02A Resin or pitch-impregnated fibers 1C10A Resists 3C02A Rigid magnetic media testing & grading equipment 4B02A Ring laser gyros 7B02A Robots controllers, and end-effectors 2B01A Robots, for underwater use 8A02A Rotary input type shaft absolute position encoders 3A01A Satellite communications equipment Cat. 5 Satellite earth station equipment 5A02A Satellite receivers, telecommunications 5A02A Scatterometers 7B02A Scrambler equipment 5A11A Seals & sealants for aircraft or aerospace 1A01A Searchlights (designed for military use) 0A18A Security, multilevel equipment 5A11A Semi-conduct or manufacturing equipment 3B01A Semi-conduct or/microcircuits device test equipment 3B01A Sensors Cat. 6 Signal analyzers 3A02A Signal processing, telecommunications 5A02A Signal processors, computers 4A03A Signal processors, digital 3A01A Signalling systems 5A03A Skirts, seals & fingers designed for underwater 8A02A Smart cards, using cryptography 5A11A

A5-9

COMMODITY DESCRIPTION	ECCN
COMMODITI DESCRIPTION	ECCN
Snubbers	2A50B
Software - located in each category under "D"	ZHOOD
Solid propellants equipment	1B18A
Solid propellants equipment	1B28B
Solid tapered roller bearings	2A03A
Source code for inertial navigation equipment	7D02A
Source code for integrated avionics systems	7D03A
Spreads spectrum radio systems	5A02A
Spreads spectrum radio systems	5A11A
Stealth technology	1C21B
Steel, maraging	1A27B
Steel, maraging	1A47B
Stored program controlled switching equip.	5A03A
Stream turbines, nuclear related	2A50B
Submarine cable	5A05A
Submersible systems	8A02A
Substrates	3B01A
Supercomputers	Cat. 4
Superconductive composite conductors	1C05A
Superconductive solenoids or electromagnets	3A01A
Switching devices	3A43B
Switching equipment, telecommunications	5A03A
Syntactic foam for underwater use	8C01A
Synthetic hydrocarbon oils	1C06A
Tape-laying machines	1B01A
Tapered roller bearings, solid	2A03A
Telecommunications Telecommunications	Cat. 5
Telecontrol equipment Telemetering/telecontrol equipment	5A02A
Telephone switching systems	5A20B Cat. 5
Telluride compounds	6C02A
Terrain contour mapping equipment	7A26B
Test equipment, telecommunications	5B01A
Thrust vector control surfaces	1C22B
Thyratrons	3A43B
Tip shroud castings	9B01A
Tools, dies for airframe or aircraft	1B03A
Tow-placement machines	1B01A
Transcoders	5A02A
Transducers	9B08A
Transistors	3A01A
Transmission equipment	5A02A
Transmitter amplifiers	5A02A
Transportation equipment	Cat. 9
Tubes, cold cathode	3A43B
Tubes, electron vacuum	3A01A
Tubes, image intensifier	6A02A
Tubes, photomultiplier	6A44B
Tubes, television camera	6A42B
Tubing, cylindrical	1A46B

COMMODITY DESCRIPTION ECCN Turbine blades, equip. for mfg. or measuring 9B01A Turbines, steam & turbine-generator, nuclear related 2A50B TV cameras, radiation-hardened, nuclear use 2A50B Underwater breathing apparatus 8A18A Underwater communications cable 5A05A Underwater communications systems 5A02A Underwater detection/locating equipment 6A01A Underwater vision systems 8A02A Unprocessed fluorinated compounds 1C09A Uranium hexafluoride mass spectrometers 3A51B Uranium hexafluoride production plants 1B19A Uranium, depleted 1A48B Vacuum microelectronics 3E02AVacuum or controlled environment furnaces 1B50B Valves 1B19A Valves 2A19A Valves 2A51B Vanes 9B01A Vehicles designed for military use 9A18A Vehicles designed for transport of "missile" systems 9A22BVessels, including hydrofoils 8A01A Vibration test equipment 2B04B Vibration test equipment 9B26B Vibration test equipment (acoustic) 9B06A Virus, software for protection against 5D13A Viruses/viroids 1C61B Wafer handling systems 3B01A Water tunnel equipment 8B01A Waveguides, flexible 3A01A Weaving machines 1B01A Wind tunnels Cat.9 Wire/cable, non-telecommunications 1A01A X-ray systems, flash discharge 3A01A Zirconium metal/alloys 1C19A